

Local File Transfer

BACKGROUND OF THE INVENTION

- 5 This invention relates to a local file transfer system and method, and in particular to a system and method for transferring digital data over a high-speed, short-range communications link with the assistance of a slow speed, wide area network communications link.
- 10 It is anticipated that hand-held portable and mobile devices (such as mobile phones, laptop computers and personal digital assistants (PDAs)) will have multiple communications interfaces, including a short-range, high-speed wireless network interface and a slower-speed, wide area network interface. Thus, such a device may have a short-range, high-speed Bluetooth interface, and a slower-speed cellular
- 15 telephone interface. Bluetooth is a short-range wireless technology which operates at 2.45 GHz. Such a short-range wireless network (known as a short-range wireless network) can support up to eight simultaneous devices. The membership of such a piconet can dynamically change as users enter and leave.
- 20 Another known short-range wireless technology is the wireless networking protocol IEEE802.11.

With either of these two short-range wireless technologies, each member of a short-range wireless network usually communicates outside the network at no more than the

25 data transmission rate of a single wide area connection such as a cellular telephony connection. Typically, each device in such a short-range wireless network is capable of storing a limited amount of digital data.

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SUMMARY OF THE INVENTION

The present invention provides a method of transferring data to a first communications device having a first transceiver for communication at a first data rate over a long range, and a second transceiver for communication at a second, higher data rate over a short range, the method comprising the steps of:

a) forming a co-ordinated short-range wireless network using the first communications device and at least one second communications device of a similar type;

b) initiating communication between the first communications device and said at least one second communications device to establish whether or not said at least one second communications device has data required by the first communications device;

c) the first communications device communicating, upon the first communications device receiving confirmation that a second communications device has the required data, with a service provider using its first transceiver to request permission for the transfer of the required data from said second communications device to the first communications device; and

d) transferring the required data from said second communications device to the first communications device following transmission by the service provider to the first communications device of authorisation.

Advantageously, prior to step d), the service provider transmits provisional permission, together with a costing, to the first transceiver of the first communications device.

Preferably, the method further comprises the step of the first communications device transmitting a message accepting the costing to the service provider using its first transceiver. In this case, the service provider may issue an authorisation once acceptance of the costing has been received from the first communications device, and may communicate said costing to a network service provider of the first communications device.

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Preferably, the method further comprises the step of the payment facility communicating the cost of said intended purchase to a banking facility associated with the user of the first communications device upon the first communications device communicating to the payment facility that said order has been made.

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The invention further provides a communications device having a first transceiver for communication at a first data rate over a long range, a second transceiver for communication at a second, higher data rate over a short range, an mp3 player, a memory, and a processor for controlling downloading of mp3 files to the memory, and
10 for transferring mp3 files from the memory to the mp3 player.

Advantageously, the processor is programmed to control the second transceiver to request downloading of a given mp3 file from a similar communications device within the range of the second transceiver. Preferably, the processor is programmed to
15 control the first transceiver to request permission from a service provider to download said given mp3 file from a similar communications device holding said mp3 file in its memory. The processor may also be programmed to control the second transceiver to request downloading of said mp3 file once authorisation is received from the service provider.

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BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described in greater detail, by way of example, with reference to the drawings in which:-

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Figure 1 is a schematic representation of a short-range wireless network and an associated service provider; and

Figure 2 is a schematic representation of a mobile phone of the network of Figure 1.

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DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to the drawings, Figure 1 shows a short-range wireless network which supports three mobile phones M1, M2 and M3. The invention allows the mobile phones M1 to M3 to advertise to find and rapidly exchange sharable digital content using a service provider 1 and a base station 2 of a cellular mobile telecommunications network.

Figure 2 shows schematically the mobile phone M1, the other mobile phones M2 and M3 being similar. The device M1 includes a low-speed transceiver 3 (typically 100 to 300 kilobits/sec) for communication with the base station 2 via an antenna 4. The mobile phone M1 also includes a high-speed transceiver 5 (typically 1 to 54 megabits/sec) and an antenna 6 for communication with the mobile phones M2 and M3 (and with any other mobile phone which enters the short-range wireless network). The short-range wireless network uses the wireless networking technology IEEE802.11, and so can accommodate a large number of users. Alternatively, the short-range wireless network uses the Bluetooth wireless networking technology.

The mobile phone also includes a processor 7 a memory 8, an mp3 player 9 and a filter 10. The memory 8 is rated at 5 megabits, and so is capable of storing an average length mp3 music file.

As an illustration of the invention, assume that the user of the integrated mobile phone/mp3 player M1 boards a bus, and immediately joins a short-range wireless network of fellow commuters, this short-range wireless network being typified by that shown in Figure 1. The user of the mobile phone M1 then transmits a request for the download of mp3 files from the two other members M2 and M3 of the short-range wireless network. This request is made using the processor 7, the filter 10, the transceiver 5 and the antenna 6 of the mobile phone M1. The filter 10 is a list of items of interest to the user of the mobile phone M1, and is input to that mobile phone either by downloading a list of preferences from the user's PC, or by inputting directly using

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the keypad (not shown) of the mobile phone. For example, the filter 10 could specify mp3 files by any of any of a given number of different artists.

Assuming that one of the other members of the short-range wireless network, say the mobile phone M2, has one or more mp3 files of interest to the user of the mobile phone M1, information to this effect is transmitted to the mobile phone M1 by the mobile phone M2. The mobile phone M1 then transmits a request to use an mp3 file of interest to the service provider 1 via the base station 2 using its low-speed transceiver 3 and antenna 4. In this case, the service provider 1 is a music service provider. The service provider 1 will then transmit permission to use the mp3 file, together with the cost for this use, to the transceiver 3 of the mobile phone M1 via by the base station 2.

The user of the mobile phone M1 then decides whether to accept the cost for this use, and transmits this decision to the service provider 1, via the base station 2, using its slow-speed transceiver 3 and antenna 4. The service provider 1 then transmits a token or password, allowing the transaction to take place, to the mobile phone M1 via the base station 2. At the same time, the service provider 1 transmits information regarding the cost to the network service provider of the mobile phone M1, so that the user of that mobile phone can be billed.

The mobile phone M1 then communicates with the mobile phone M2 using its high-speed, short-range transceiver 5 and antenna 6 to confirm that the mobile phone M1 has access rights to the mp3 file of interest. The mobile phone M2 then downloads this mp3 file to the mobile phone M1 over the high-speed, short-range link. This mp3 file is then stored in the memory 8 of the mobile phone M1, ready for playing on the mp3 player of that mobile phone.

Most of the transaction steps described above could be automatic, so that the user of the mobile phone M1 need only notice that a new mp3 file has been stored in the memory 8 of the phone prior to using that file. Thus, the mobile phone M1 may be programmed, using its processor 7, automatically to request the download of mp3 files of interest whenever it enters a short-range wireless network. Similarly, other mobile

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phones in the short-range wireless network may be programmed to respond either positively or negatively to a request for mp3 files to be downloaded. Each of these mobile phones could also be programmed to carry out all the other necessary steps of the transaction process. It would, of course, be possible for each of the steps to be

5 individually controllable by the users of the mobile phones.

The transaction process described above could be modified, for example, by arranging for the user of the mobile phone M2 to receive a payment from the user of the mobile phone M1. In this case, the service provider 1 could arrange for the network service

10 provider of the mobile phone M2 to credit that user's account, once confirmation that the download has been completed is received by the service provider 1. This confirmation could be sent by either the mobile phone M1 or the mobile phone M2 over the slow-speed cellular network.

15 The transaction process described above could also be modified by arranging for the transaction process to be initiated by the user of the mobile phone M1 advertising that mp3 files are available for download to other members of a short-range wireless network. In this case, the transaction process would commence with the mobile phone M1 transmitting a list of available mp3 files over the short-range, high-speed network.

20 Assuming one of the other members of that network, say the mobile phone M2, wishes to download one of the available mp3 files, that mobile phone will transmit a request to use a mp3 file of interest to the service provider 1 via the base station 2, using its low-speed transceiver 3 and antenna 4. The remaining steps of the transaction will then be substantially identical to that described above, but with references to the mobile

25 phone M1 and M2 reversed. Thus, the mobile phone M2 will eventually be permitted to download an mp3 file of interest, and its network service provider will be informed of the cost of the transaction, and possibly a payment will be made to the user of the mobile phone M1 via its network service provider.

30 The transaction process described above could be further modified to create a new form of limited duration digital right (that is to say a right to use). Thus, the right to use a given digital content such as an audio file can be limited to temporary use while the

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device (such as a mobile phone) requesting the right is associated with the short-range wireless network from which the digital content is obtained. In this case, the digital content would be transferred by streaming, rather than by downloading an entire file, so that the audio file would be heard in real time by the user of the receiving mobile phone. Here again, the transaction process would include the use of the low-speed transceiver 3 and associated antenna 4 to obtain permission to use the audio file from a service provider.

It will be apparent that the method of the invention could be modified for other purposes. For example, if the user of the mobile phone M1 wishes to purchase a specific item, details of this item can be included in the list of items of interest in the filter 10. Then, if the user of the mobile phone M1 is in a shopping mall, the short-range high-speed transceiver 5 of that phone can be used to interrogate similar transceivers in the shops of the mall as they are passed. If one of the shops has the item of interest, it will transmit confirmation of this, together with the asking price, over the short-range network. The user of the mobile phone M1 can then order the item using the high-speed, short-range network, and can arrange for payment, for example by credit card over a secure channel, using the low-speed, long-range cellular network. The user can confirm the order with the shop over the short-range network. The short-range network could also be used to arrange for delivery of the item, or for the item to be held until the user wants to pick it up.

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